CLAIMS

What is claimed is:

1. A high specimen yield anti-reflux head for a needle aspiration biopsy device, comprising:

a hub defining a specimen collection well and mounting a needle having a shaft with an open pointed tip; and

a sample passageway extending from the pointed tip of the needle to a segment inside the hub opening in spaced relation to a floor of the collection well.

2. The device of claim 1, wherein the needle defines the entire passageway extending from the pointed tip to a contoured proximal end.

3. The device of claim 2, wherein the hub defines an opening in the floor of the collection well through which the needle shaft extends.

4. The device of claim 2, wherein the proximal end of the needle includes a segment that extends along and opens about a lateral axis at an angle to a longitudinal axis of the needle.

5. The device of claim 4, wherein the lateral and longitudinal axes are essentially perpendicular.

6. The device of claim 3, wherein the proximal end of the needle in part follows the contour of the collection well.

7. The device of claim 1, wherein the passageway is defined in part by the needle and in part by an internal channel in the hub.

8. The device of claim 7, wherein the needle has a straight proximal end disposed at an opening in the hub defining an end of the channel.

9. The device of claim 8, wherein the proximal end of the needle has raised barbs.

10. The device of claim 8, wherein the channel includes a lateral segment that extends along and opens about a lateral axis at an angle to a longitudinal axis of the needle.

11. The device of claim 10, wherein the lateral and longitudinal axes are essentially perpendicular.

12. The device of claim 1, wherein the collection well has an anti-coagulant surface.

13. The device of claim 12, wherein the anti-coagulant surface is a coating of ACD or EDTA.

14. The device of claim 1, wherein the needle has an anti-friction surface.

15. The device of claim 14, wherein the anti-friction surface is a Teflon coating.

16. The device of claim 1, wherein the hub includes an outer grip.

17. The device of claim 15, wherein the hub has an open mouth allowing access to the collection well.

18. The device of claim 17, further including a lid securable to the hub to cover the mouth.

19. The device of claim 1, wherein the collection well has a volume of at least 100 μL.

20. The device of claim 1, further including a sheath stand defining an elongated cavity for containing the needle and having an open end mountable to the hub.

21. The device of claim 1, wherein the needle defines a scoop opening at a side of the needle in communication with the passageway.

22. A high specimen yielding anti-reflux needle aspiration biopsy device, comprising:

a syringe including a barrel and a piston slidable within the barrel;

a valve for controlling an opening in the syringe barrel;

a hub linked to the valve and defining a specimen collection well; and

a needle mounted to the hub having a shaft with an open pointed tip;

wherein one or more of the hub and needle define a passageway extending from the needle tip to inside the hub opening in spaced relation to a floor of the collection well.

23. The device of claim 22, further including a coupler containing the valve and connecting the hub to the syringe.

24. The device of claim 22, wherein the needle defines the entire passageway extending from the pointed tip to a contoured proximal end.

25. The device of claim 22, wherein the passageway is defined in part by the needle and in part by an internal channel in the hub.

26. The device of claim 25, wherein the needle has a straight proximal end disposed at an opening in the hub defining an end of the channel.

27. The device of claim 22, wherein the collection well has an anti-coagulant surface and the needle has an anti-friction exterior surface.

28. The device of claim 22, further including a sheath stand defining an elongated cavity for containing the needle and having an open end mountable to the hub.

29. The device of claim 22, further including a piston lock mounted to the syringe so as to fix the position of the piston relative to the barrel.

20. The device of claim 22, wherein the needle defines a scoop opening at a side of the needle in communication with the passageway.

31. A method of needle aspiration biopsy using a device as recited in claim 22, comprising the steps of:

creating a vacuum in the syringe;

inserting the needle into a specimen sample site;

communicating the vacuum to the needle;

probing the specimen sample site with the needle to collect specimens in the collection well of the hub;

releasing the vacuum in the needle;

withdrawing the needle from the specimen sample site;

separating the hub from the device; and

transferring specimens collected in the hub to an examination site.

32. The method of claim 31, wherein the step of creating a vacuum in the syringe includes closing the valve and pulling the syringe piston away from the syringe barrel.

33. The method of claim 32, wherein the vacuum is communicated to the needle by opening the valve.

34. The method of claim 33, wherein the step of releasing the vacuum in the needle includes reclosing the valve.

35. A high specimen yielding anti-reflux needle aspiration biopsy device, comprising:

a syringe including a barrel and a piston slidable within the barrel;

a valve for controlling an opening in the syringe barrel;

a hub linked to the valve and defining a specimen collection well having a volume of more than 500 micro liters; and

a needle mounted to the hub having a shaft with an open pointed tip;

wherein one or more of the hub and needle define a passageway extending from the needle tip to inside the collection well.

37. A high specimen yielding anti-reflux needle aspiration biopsy device, comprising:

a syringe including a barrel and a piston slidable within the barrel;

a valve for controlling an opening in the syringe barrel; and

a hub linked to the valve and defining a specimen collection well, wherein the hub defines an internal passageway for putting the collection well in communication with a lumen of a needle.

38. The device of claim 37, wherein the collection well has an interior volume of at least 100 micro liters.

39. The device of claim 37, wherein the internal passageway opens to an interior of the collection well through an opening spaced from a floor of the collection well.